

THERE IS CLAIMED:

1. A selective frequency extractor for forwarding one or more selected frequencies of a wavelength division multiplex input signal consisting of N channels to one output port and all other frequencies to another output port, which extractor includes:
 - a demultiplexer having at least one input port and at least N output ports: for any value of i from 1 to N, the i^{th} output port of said demultiplexer is adapted to receive the corresponding i^{th} frequency of said input signal,
 - a multiplexer having at least N+1 input ports and at least two output ports: for any value of i from 1 to N, the i^{th} input port of said multiplexer is adapted to forward the i^{th} frequency of said input signal to a first output port of said multiplexer, and for any value of i from 2 to N+1, the i^{th} input port of said multiplexer is adapted to forward the $(i-1)^{\text{th}}$ frequency of said input signal to a second output port of said multiplexer, and
 - optical switches for selectively connecting any i^{th} output port of said demultiplexer, for i from 1 to N, either to said i^{th} input port of said multiplexer or to said $(i+1)^{\text{th}}$ input port of said multiplexer.
2. A reconfigurable frequency add and drop multiplexer, including:
 - a demultiplexer having at least two input ports for receiving two wavelength division multiplexes consisting of N channels, and at least N+2 output ports: for all values of i from 1 to N, the i^{th} output port of said demultiplexer is adapted to receive the corresponding i^{th} frequency of a first multiplex received at said first input port, and for any value of i from 3 to N+2, said i^{th} output port of said demultiplexer is adapted to receive the $(i-2)^{\text{th}}$ frequency of the second multiplex received at said second input port,
 - a multiplexer having at least N+1 input ports and at least two output ports: for any value of i from 1 to N, the i^{th} input port of said multiplexer is adapted to forward the i^{th} frequency to a first output port of said multiplexer, and for any value of i from 2 to N+1, an i^{th} input port of said multiplexer is adapted to forward the $(i-1)^{\text{th}}$ frequency to a second output port of said multiplexer, and
 - optical switches for selectively connecting any i^{th} output port of

